DOCUMENT RESUME

ED 277 713 TM 860 606

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TITLE Special Needs Schools, Priority I. Student Achievement Results.

INSTITUTION North York Board of Education, Willowdale (Ontario).

PUB DATE Jan 86
NOTE 14p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Academic Achievement; Achievement Tests; Elementary Education; Foreign Countries; Grade 3; Grade 6; *Improvement Programs; School Districts; Scores; Testing Problems; *Testing Programs; *Test Results; Trend Analysis
IDENTIFIERS Canadian Achievement Tests; Gates MacGinitie Reading Tests; *Ontario (North York)

ABSTRACT

After the 1984-85 evaluation of the Special Needs Project in the North York, Ontario Schools, it was decided to extend the standardized achievement testing for the 1985-86 school year. Because of previous test validity problems, testing was continued under more uniform conditions; practice tests were available and the achievement tests were administered by a group of special testers. About 90 percent of the students in the third and sixth grades were tested. The Gates MacGinitie Reading Comprehension Test and Canadian Achievement Tests--mathematics computation and mathematics concepts and applications--were administered to 693 third graders. Canadian Achievement Tests--reading comprehension, mathematics computation, and mathematics concepts and applications--were administered to 668 sixth graders. Grade 3 scores were higher than the results from 1985 and 1981. Mathematics computation scores were at the expected norm, while reading comprehension and mathematics concepts scores were 8 and 5 months below the expected level. All sixth grade subtest scores surpassed the 1984 testing; mathematics scores also surpassed the 1981 results. Computation scores were within 1 month of the expected norm, 2 years below level in reading comprehension, and 1 year below in mathematics concepts. (GDC)

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RESEARCH REPORT

SPECIAL NEEDS SCHOOLS

PRIORITY I

STUDENT ACHIEVEMENT RESULTS

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Mavis Simons, Patricia Crawford

January, 1986

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INTRODUCTION

Background and Purpose

In 1981, the Board received a comprehensive report on elementary schools with special needs. Many issues of concern were identified in the report including low public confidence, low staff morale, low student achievement and low self concept of students. The Board approved a set of recommendations intended to address the concerns identified, thus initiating the Special Needs Project. As part of the accountability procedures established for the project, a long-term plan was developed for monitoring changes in parents' perception of schools (1984), teachers' perceptions (1983), and students' self concept and student achievement (1985).

During 1984-85, the final year of the evaluation plan, data were collected from all grade 3 and grade 6 students in the Priority I schools in the areas of reading, mathematics and self concept. A comparison of the scores with similar data collected during 1981-82, the first year of the project, indicated that while self concept scores had increased at both grade levels, the grade 3 reading and mathematics scores were almost the same as three years earlier and the grade 6 scores were lower than in 1981. In other words, many students were still underachieving academically. These findings prompted a detailed analysis of the tests themselves, and the circumstances in which students completed them. As a result of these analyses and through consultation with principals, teachers, supervisory officers and Curriculum Department staff, it was concluded that:

- while the tests were adequate to measure parts of the North York curriculum,
- many students did not have effective test-taking skills, and
- there was sufficient variability in the testing situations from classroom to classroom to raise some concerns about the validity of the results.

All of the objective and subjective data gathered were shared on an individual school basis with each principal and staff and plans were made for future program modifications,including the sharing of program and teaching strategies that individual schools had found to be particularly successful. Further, the decision was made to extend the standardized achievement testing for one more school year, 1985-86.

This report describes the procedures undertaken for collecting standardized achievement data in the fall of 1985, the results of the 1985 testing, and compares the results with those obtained during 1981-82 and 1984-85.

METHOD

The Achievement Tests

As in 1981 and 1984, the tests used were:

Grade 3

Gates McGinitie Level C

- Reading Comprehension

Canadian Achievement Tests - Level 13

- Mathematics Computation
- Mathematics Concepts and Applications

Grade 6

Canadian Achievement Tests - Level 16

- Reading Comprehension
- Mathematics Computation
- Mathematics Concepts and Applications

Due to the very positive results obtained in 1984, it was decided not to readminister the North York Self Concept Inventory.

Sample

All children in grades 3 and 6 in the sixteen Priority I elementary and middle schools were included in the testing with the following exceptions:

- students enrolled in self-contained special education classes for fifty percent or more of their time
- students who were identified as E.S.L. and had arrived in Canada during the year prior to testing
- students for whom the testing process would be a traumatic or emotionally upsetting experience in the view of the teacher and principal; this pertained primarily to the grade 3 students.

Those students receiving E.S.L./D. or special education support, but who did not meet the above criteria, were included in the testing.

Procedures for Data Collection

During October all principals were informed that copies of achievement tests were available to be used as practice and preparation began for the achievement testing to be conducted during the last two weeks in November. The practice tests closely resembled the actual tests to be used and therefore provided students with an opportunity to become familiar with the types of questions that would be asked, the format for recording their answers, and completing a test within specified time limits.

In order to ensure optimum testing conditions, seven teachers from the occasional teacher roster were hired to visit each classroom and to administer the tests with the assistance of the classroom teacher. It was stressed that it was essential for classroom teachers to be present to be certain that

students had a familiar person available. Prior to the beginning of the testing period, the testers participated in a half day training session to ensure that they were familiar with all of the instructions for test administration.

At each grade, the tests were administered in three separate sessions of approximately 30 - 35 minutes. During the last two weeks in October, principals were contacted individually to schedule the various sessions needed for each class. As far as possible, arrangements were made so that the same testers carried out all of the testing in each school.

All of the testers reported to us that they received a warm welcome in the schools, that teachers made every effort to ensure that the testing went smoothly and that students were very co-operative. The following comment from a vice-principal reflects that from the schools' point of view as well, the testers were well received:

> "One of the initial concerns I encountered from teachers with regards to the Special Needs Testing was the use of outside testers instead of classroom teachers.
>
> I'd like to take this opportunity to commend you on your selection of testers. Without exception, the six teachers involved in the testing spoke of the pleasant, approachable manner evidenced by the testers, and their skill in defusing anxiety.
>
> Thank you for the fine job done in training the testers."

Following completion of the testing, all materials were returned to Educational Research and Evaluation Services for checking, scoring and analysis.

THE FINDINGS

Completed test booklets were received from 693 grade 3 students and 668 grade 6 students. These figures represent approximately 90% of all the students enrolled in the two grades. Answer sheets were prepared for scanning by Research staff and then sent to Computer Services for scoring and preliminary analysis. Detailed analysis and referencing of the new data with the information on file from 1981 and 1984 was carried out by Research staff. The average scores obtained are given as a percentage of the number of items on each subtest.

The findings are presented in the following sections.

- Grade 3 Findings
- Grade 6 Findings
- Item Analysis of the Grade 3 Results
- Item Analysis of the Grade 6 Results: Comparing 1984 with 1985

Grade 3 Findings

Analysis of the 1985 results show that in all three curriculum areas the average percentage of items correct was higher than that attained by students in 1984 and 1981. When compared to the expected performance level based on norms established by the test publishers, the grade 3 students are at the expected level in math computation. They are eight months below the expected level in reading comprehension and five months below the expected level in math concepts.

TABLE 1

Grade 3 Student Evaluation Results

	Reading Comprehension (N=44)		Math Computation (N=40)		Math Concepts (N=45)	
	Average Raw Score	Mean %	Average Raw Score	Mean %	Average Raw Score	Mean %
Expected levels for Grade 3 *	29	66	16	40	24	53
1981	19.8	45	12	30	16.2	36
1984	19.4	44	11.6	29	17.1	38
1985	21.6	49	15.6	39	20.2	45
Difference 1981-84		-1		- 1		+2
1981-85		+4		+ 9		+9
1984-85		+5		+10		+7

* Based on norms developed for the test by the publisher.

Grade 6 Findings

The average scores for grade 6 students in all three areas were higher than those achieved by grade 6 students in 1984; in both math tests, they surpassed the 1981 results as well. When compared to the test norms on math computation students in 1985 are within one month of the level expected for grade 6 students tested in November. These students remain two years below the expected level in reading comprehension and one year below in math concepts according to the test publisher's norms.

TABLE 2

Grade 6 Student Evaluation Results

	Reading Comprehension (N=40)		Math Computation (N=40)		Math Concepts (N=45)	
	Average Raw Score	Mean %	Average Raw Score	Mean %	Average Raw Score	Mean %
Expected levels for Grade 6 *	25	62	25	62	28	62
1981	18.8	47	20.8	52	20.4	51
1984	16.4	41	18	45	18	45
1985	18	45	23.6	59	23.8	53
Difference 1981-84		-6		-7		-6
1981-85		-2		+7		+2
1984-85		+4		+14		+8

* Based on norms developed for the test by the publisher.

Graphs depicting both the grade 3 and grade 6 results for 1981 - 1985 may be found in Appendix A.

Item Analysis of Grade 3 Results

The Gates-MacGinitie Reading Comprehension test used with the Grade 3 students contains items that require comprehension of information that is explicitly stated in the passage to be read (literal) and those that require an understanding of information that is implicit in the passage (inferential). The students experienced greater success with those items testing literal comprehension. A majority of them gave correct responses on 48% of the literal items, while a similar number answered correctly 13% of the inferential items.

The math computation test results showed that most of the students were quite successful at addition and subtraction although items containing three or four digits presented difficulty for many. They were less successful at multiplication, where the majority answered 20% of the items correctly, and division where there were no items to which the majority of children gave the correct response.

The results of the math concepts test showed that the grade 3 students demonstrated competent performance in geometry, where the majority of students answered 80% of the items correctly, and common scales, where most students responded correctly on 60% of the items. Items that created most difficulty were those involving measurement (e.g. story problem where they needed to convert metric measures) and number properties, especially items where they were required to supply a sign to complete the number sentence. (e.g. 7 + 6 + 3 = 4 □ 4).

Item Analysis of Grade 6 Results: Comparing 1984 with 1985

There was general improvement in all curriculum areas tested. In reading comprehension there was particularly good improvement in recall of facts, where the majority of the grade 6's gave the correct response to all of the items, a very proficient performance. On those items that measured the students' ability to provide contextual meaning of words such as "feasible", "prior", "disillusioned", most of the students responded correctly to 60% of the items. They are still below the competency level on the more difficult areas of interpretive and critical comprehension, although there is some improvement. In particular, there is a marked decrease in the percentage of "no answers", indicating that more students were able to complete the test than in 1984.

An even greater improvement appeared in the math computation results. In both addition and multiplication, the majority of students answered 80% of the items correctly. They also performed very competently in subtraction, where most of the students answered 70% of the items correctly. In division, they remain somewhat below the competency level, although here too, there is a marked improvement from 1984. Fractions still present difficulty for many students, especially when items also involve whole numbers or least common denominators. (e.g. 8 + 1/2 = , or 3/10 + 1/10 =)

Encouraging too, are the math concepts results. In geometry, the grade 6 students moved from a very low level of performance in 1984 to a very proficient performance in 1985, with the majority of students responding correctly to all items. A similar improvement is evident in number theory, where the majority answered 80% of the items correctly. Slightly lower, but still at competency levels, were the results achieved on numeration and measurement. On both these skills, most of the students responded correctly to 80% of the items. The areas that presented the greatest difficulty were those items that measured skills of rounding/estimation, problem solving, graphs and number properties/ sentences, although in all there was improvement in that more students responded correctly to more items and there were fewer "no answers" than was the case in 1984.

DISCUSSION

Did we meet the concerns regarding the 1984 data-gathering process?

Following the testing in 1984 two major concerns were raised by teachers, administrators and Research staff. These were:

- the wide variety of testing conditions
- the students' lack of practice with the format and conditions for standardized tests

A re-testing experiment undertaken in January last year by two members of the Research staff suggested that these two factors were, indeed, critical to test performance.

As pointed out earlier in this report, this Fall all the principals and teachers involved used the practice materials provided by the Research department to familiarize their students with the types of questions they would be asked and the conditions under which they would be working. For example, many young children might not be aware that the correct response to a test item could be "none of the above."

Further, since optimum test conditions are imperative for accurate standardization, the teachers who were hired as testers were specifically trained to follow the instructions provided by the publishers. In order to allay any feelings of discomfort the children might feel in the presence of the "stranger", the Research department consulted with principals of the schools in order to hire occasional teachers who had worked successfully in Special Needs schools. In addition, the classroom teachers were required to remain in the classes with the testers throughout the process. All the testers reported that they had been well received in the schools and the procedures had gone smoothly.

What initiatives were taken by the schools themselves to alleviate the concerns raised in 1984?

In addition to making sure that teachers used the practice materials to improve the test-taking skills of their pupils, principals also held meetings with the Chief Consultant, Reading and the Coordinator of Mathematics, to discuss The Formative Years and the North York guidelines in reading and mathematics. Also, the Assistant Superintendent responsible for the Special Needs Project established sub-committees of school and program staff to develop packages of skill testing items that were directly related to the North York guidelines. Principals then reviewed objectives with their staffs using these sample items.

CONCLUSION

At a recent Symposium on the education of Caribbean students,[1] sponsored jointly by the Jamaican Canadian Association and the Caribbean Student Resource Book Committee, the point was made by speaker after learned speaker that one of the most critical elements in improving the academic status of children from the Caribbean is a high level of expectation on the part of the students, their parents and most importantly, their teachers. This is true for all students. Most young people, like the rest of us, tend to rise to meet the expectations of those they love and respect. Recent research with regard to "effective schools" also bears out the fact that among the essential components of schools that produce academically successful students are:

> "high expectations of students, teacher efficacy (teachers believe they can teach all of the students in their charge) and community support"[2]

The 1985 report on Special Needs Schools, Priority I, Student Evaluation Results said that, "The self concept of students . . . . is presently very positive and thus the groundwork has been laid for proceeding to improved levels of academic achievement".[3]

It would appear that the groundwork laid by the trustees, administrators and teaching staff is indeed being built on and an important part of their success has been the belief on the part of teachers and principals that their students could improve.

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1. The Caribbean Student Symposium took place January 9 - 10, 1986 at the Jamaican Canadian Association building in Toronto.

2. Johnston, J.H., Markle, G.C. and dePerez, J.M. "About Effective Schools", Middle School Journal, August, 1984.

3. Broks, Gloria, and Crawford, Patricia. Special Needs Schools Priority I: Student Evaluation Results. January 1985

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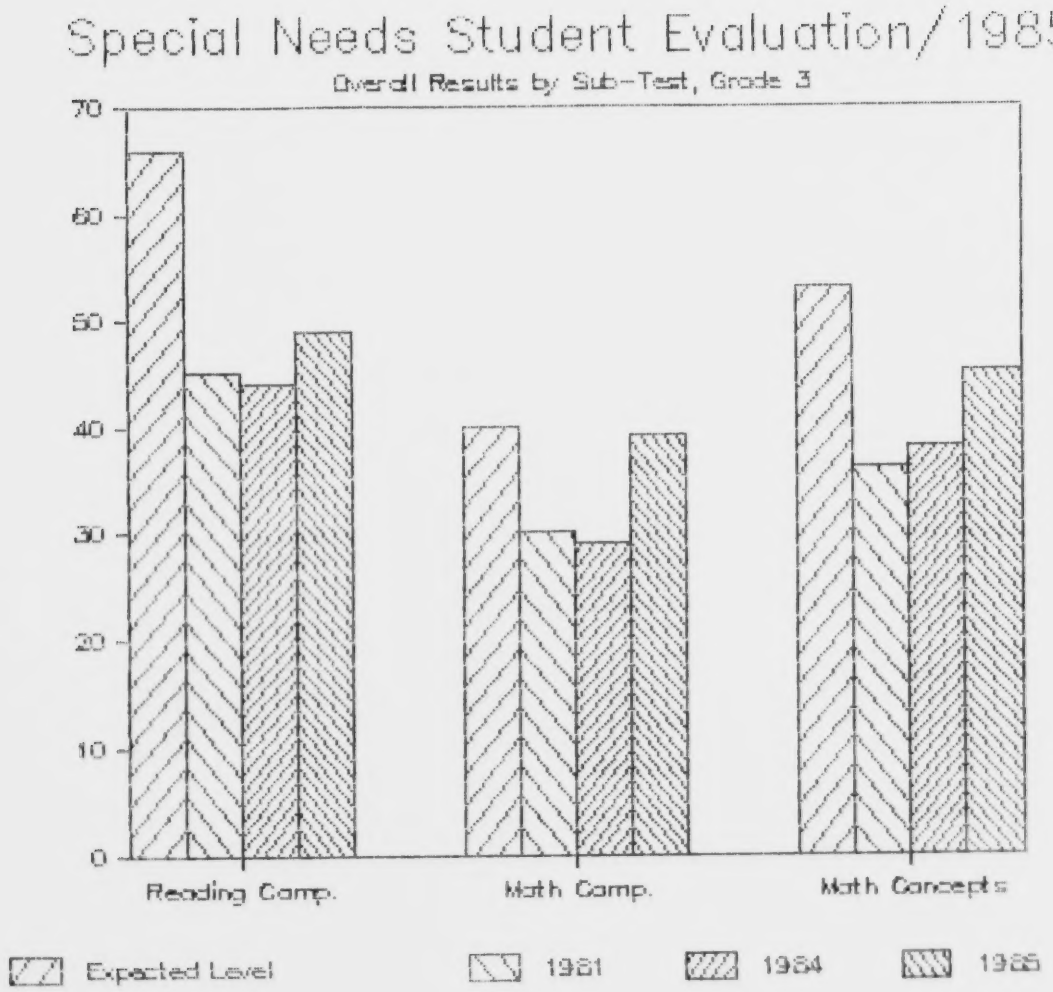
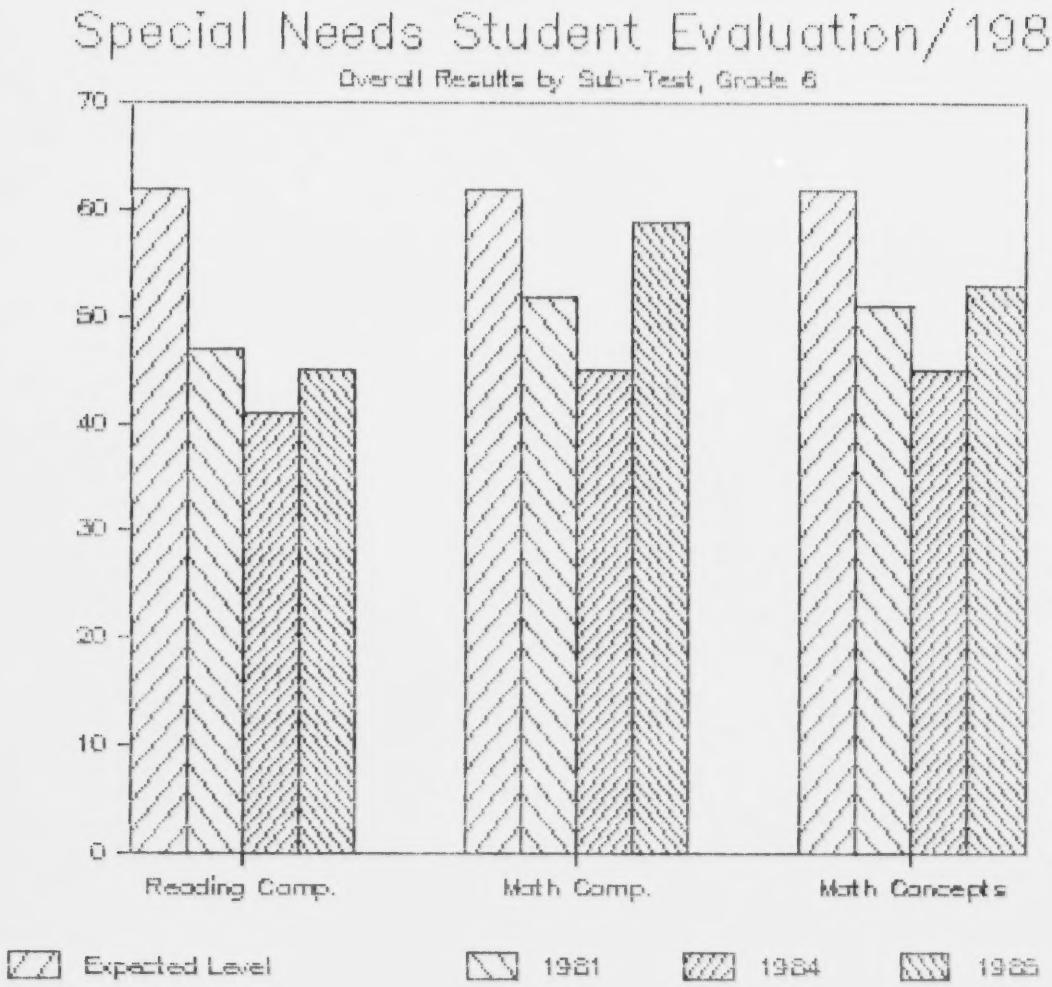

Special Needs Student Evaluation/1985
Overall Results by Sub-Test, Grade 3
70
60
50
40
30
20
10
0
Reading Comp.
Math Comp.
Math Concepts
Expected Level
1981
1984
1985


Special Needs Student Evaluation/1985
Overall Results by Sub-Test, Grade 6
70
60
50
40
30
20
10
0
Reading Comp.
Math Comp.
Math Concepts
Expected Level
1981
1984
1985